

**Design of a Radiation Hardened Mobile Vehicle for Chernobyl
Dismantlement and Nuclear Accident Response***

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ABSTRACT

LLNL researchers working with the Chernobyl Engineering Support Center, the Ukraine Academy of Sciences and the Scientific Research Institute of Mechanical Problems "RITM" are developing a radiation hardened, Telerobotic Dismantling System (TDS) to remediate the Chernobyl Unit 4 reactor . The design of the robot is driven by both the highly radioactive environment and the irregularity of the terrain within the "Ukritiye" (or Shelter) that the robot must operate in. This environment includes large quantities of radioactive dust, the presence of strong radiation fields, on the order of 1,500 R/h, temperature variations from -10 C to +30 C and surface relief variations of up to 200mm. Specialized aspects of the robot design that will enable it to be operational in this extreme environment will be discussed. Specifically, the robot's structural design, locomotion system, plus its vision and navigational system will be presented. Also, the testing, evaluation and remediation plan for the Ukritiye will be outlined.

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